DOCUMENT RESUME

ED 354 807 HE 026 226

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TITLE The Learning Style Preferences of Students in Graduate School.
PUB DATE 11 Nov 92
NOTE 14p.; Paper presented at the Annual Meeting of the Mid-South Educational Research Association (Knoxville, TN, November 11-13, 1992).
PUB TYPE Speeches/Conference Papers (150) -- Information Analyses (070)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Cognitive Style; *Graduate Students; Graduate Study; Higher Education; *Instructional Effectiveness; *Learning Processes; Questionnaires; Research; *Student Attitudes; *Teaching Methods

ABSTRACT

This paper discusses research designed to determine the learning style preferences of students in a graduate class. The theoretical backdrop for the study was that learning styles impact on both the academic achievement of students and the teaching effectiveness of the instructor. Fifteen students, ranging in age from 23 to over 37, in a research methods in education course, participated in the study by completing a 10-item personal theory of learning inventory. Survey questions inquired as to the student's preference for informal teacher presentations, the provision of structure in learning, and attitudes toward note-taking, textbook reading, studying, norm-referenced grading, listening to other students' ideas, small group discussions, essay examinations, and independent investigation of topics. Results showed the class preferred an orderly presentation of materials interspersed with structure, drill, and practice. They did not like to read textbook type material or to study for tests, but they did like essay type questions and listening to the ideas of other students. Overall, the results showed that the learning style theory was useful in classroom practice at the graduate level because a knowledge of students' learning style empowered the instructor to modify teaching and adapt individual teaching style for the benefit of the individual students. Contains 21 references. (GLR)

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THE LEARNING STYLE PREFERENCES OF STUDENTS IN GRADUATE SCHOOL

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Paper Presented at the Annual Meeting of The Mid-South Educational Researchers Association. Knoxville, Tennessee November 11-13, 1992

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THE LEARNING STYLE PREFERENCES OF STUDENTS IN GRADUATE SCHOOL

Teaching is difficult because "we do not know enough about all the factors that affect learning" Brandt (1990). The use of learning styles theory will enable teachers to modify their teaching style, and to accommodate the learning style differences of their students.

Statement of the Problem

There is a lot of "wastage" in teaching particularly at the higher education level because of the high college dropout rate. Educators who are perturbed at this trend must look for alternative ways of teaching that will optimize student learning. The use of learning style theory as a tool for empowering both teaching and learning is one way of addressing "wastage". Will students learn better when their individual learning styles are taken into account by the instructor, or will they learn less if this is not done?

"The Learning Styles Of Graduate Students" is a pilot study using a variation of the concept of learning style as a teaching tool. Research methods in education is intended to equip students with skills necessary to become competent consumers and producers of educational research Gay (1992). Education research should be skill, and application oriented rather than knowledge, and theory oriented. In this class the students were required to perform certain tasks related to particular research functions. For example the first task is to identify and briefly state the problem, procedures, method of analysis, and major conclusions of a research study reprint. Seven other tasks progressively guide the students towards the completion of an educational research proposal. An instructor in a class such as this ~~individual~~ should provide individual attention to students in different states of readiness. Group and individual learning style profiles could help to maximize instruction.

Review of the Literature

Keefe (1979) defined learning style as "characteristic cognitive, affective, and physiological behaviors that serve as relatively stable indicators of how learners perceive, interact and respond to the learning environment". Learning style theory suggests that students react differently to information, and that each reaction may be influenced by cognitive, affective, and physiological factors. A knowledge of different types of learning styles is essential to effective teaching because it provides direction to teaching and learning (Cornett,1983). The Journal of Educational Leadership (1990) devoted a publication to the theme "Learning Styles and the Brain." The American Association of School Administrators (1991) published a monograph entitled Learning Styles: Putting Research Into Practice. The National Education Association (1992) published a monograph authored by Reif (1992), entitled Learning Styles. Reif reviewed several approaches to learning styles and made some strong arguments for all teachers to understand and use the research to their advantage in professional practice. A listing of each approach accompanied by selected works from the literature may be helpful to the reader:

1. Teachers who know about learning style will reduce their frustrations as well as those of their students (Cornett,1983; Guild & Garger,1985).
2. Knowledge of learning style will improve students' self concept and achievement (Gregorc & Butler, 1984),(Dunn,Beaudry & Klavas,1989).
3. The teacher with an understanding of learning styles can plan varied and appropriate lessons for a variety of learners (Keefe,1987; Borko & Niles 1987; McCutcheon 1980).
4. A knowledge of learning styles will increase a teacher's variability and flexibility. Students and teachers should be able to adapt and change

styles even if they have individual preferred styles. Hunt & Joyce (1967).

5. Teacher style rigidity will inhibit reaching a majority of students, therefore using a variety of techniques in the classroom is highly recommended Goodlad (1984).

An understanding of learning styles will facilitate improved teacher student communication particularly as in communicating with students from different backgrounds. Faculty in institutions of higher education should not assume that college students had adjusted to the lecture style format which now dominates college teaching. More women, non-traditional students, and minority students are enrolling in college, and each group has unique learning needs. Attention to the individual learning styles of college students ought to be made because of the high cost of a college education,as well as a national need to minimize the college drop out rate. Advocates for teaching to the style of individual students include (Gregorc,1977;Carbo,1983;Carbo,Dunn and Dunn, 1986;Guild,1990; McCarthy, 1990).Those who oppose the use of learning style theory in teaching include (Kavale & Forness,1987), Curry (1990), Cholakis (1986),Kirby (1988),(Cohen, Hyman,Ashcroft, and Loveless,1989). Educators must be selective and use learning style approaches that are simple, and reflect the needs of their respective students.

Statement Of Hypotheses

1. Responses to the personal theory of learning inventory will provide group and gender profiles pertaining to preferences in learning styles.
2. There will be no significant difference at the .05 level between mean group test-retest responses to the personal theory of learning inventory.

METHOD

The subjects were 15 students in a research methods in education course ranging in age from 23 to over 37. A majority of the students were college of education graduates, but the group consisted of students from nursing, nutrition, recreation, and music. All of the students were caucasian. There were 4 males and 11 females.

Instrumentation

The Personal Theory Of Learning Inventory.

The personal theory of learning inventory, developed by (Musial,Johnson,Dupuis,and Johansen, 1991), is a self-report check-list of 10 items five of which indicate a preference for "authoritarian type " teacher dominated teaching and learning style and five for "non-authoritarian student-centered teaching and learning type method. Its objective was to help students clarify how they learn best. Questionnaire items invited responses pertaining to preference for informal teacher presentations, the provision of structure in learning, attitudes toward note-taking, and textbook reading, studying, norm-referenced grading, listening to other students' ideas, small group discussions, essay examinations, and independent investigation of topics.

The original instrument is a check-list with "yes", and "no" responses. The adapted format used for this study included four possible responses - strongly agree, agree, strongly disagree, and disagree. The first two and last two response scales were fused for the purpose of data analysis. Validity and reliability studies have not been conducted for this instrument, but item validity is indicated in a perusal of the literature. A test-retest reliability procedure was implemented by giving the same instrument to the subjects three weeks after the first one was administered.

The instrument is based on a classification of learning styles into teacher-dominant, and learner-supported categories. Teacher-dominant learners prefer authoritarian-style teaching based on what Friere (1968) termed the "banking concept" of education. Those who are so oriented view learning as a convergent activity dominated by the lecture and expect the learners to be passive consumers of instruction. A learner-supportive style is premised on beliefs that the learner must be more verbally active, engage in divergent activity, and participate more in class. This preference which recognizes differences in learning, individual interests and higher order learning, is called non-authoritarian.

Data Collection Procedures

Responses to the ten items of the instrument were analyzed as frequency counts under authoritarian and non-authoritarian preferences. The three categories of frequency data were - class, male, and female. Responses to question items for the first and second administrations are listed in Tables 1 and 2 respectively. The Pearson's correlation of coefficient procedure was performed and a correlation of stability obtained in order to determine the instrument's reliability.

Results

Hypothesis 1. was supported. General, and gender type profiles pertaining to learning style preferences were identified. The class preferred an orderly presentation of material interspersed with structure, drill and practice. They did not like to read textbook type material or to study for tests. They liked writing essay type questions and listening to the ideas of other students. There were variations among male and female students which, when taken into consideration in individual interactions, will facilitate

their learning. Regular use of the instrument has enabled the instructor to obtain a general class profile pertaining to the learning style preference of students. Profiles have enabled the writer to vary instructional style and to pay attention to the needs of students individually.

Hypothesis 2. was also supported. A Pearson correlation coefficient of .92 (84 percent) was obtained. A significance level ($p \geq .05$, df=13,) indicated that the instrument was reliable. The writer intends to continue using the instrument because of its ease of administration and scoring.

Authoritarian style preference

Classroom Implications

The original objective of the instrument was to help students clarify how they learn best. However, the instrument can also be used by an instructor to help vary teaching style and organize material in a way that maximizes the learning of a larger number of students. Students generally procrastinate before registering for the research methods in education course. When they register, they are usually in a high state of anxiety. These inhibitions are reinforced by grapevine stories that they have heard about negative experiences of other students who previously took the course. Many believe that there is a lot of statistics involved in this course and that it would be difficult. The instructor assured the class that a lot of the frightening stories they may have heard were exergerrated. Each member was assured that the course will be taught in a way that took the learning style individual learning style preference into consideration.

General definitions and research methodology were covered in half-hour segments. Reviews and relevance of method to normal life followed. Various tasks were assigned and each student was expected to complete each task before

moving to the next. Small and large group discussions were used to facilitate more student to student interaction.

Structure was provided in a syllabus containing dates in which topics will be covered and a reading assignment provided. Lectures were limited to half of class time and concentrated on summarizing content material and,identifying questions for discussion. Attention was paid to relevance of the topic to everyday life when appropriate. Opportunities were provided for students to share and discuss their progress in groups as well as in whole class sessions. Each student was allowed to give a five minute presentation of any one of the course requirements to the class.

This class consisted of students who had little or no background in research methodology. One requirement for this course was the writing of a research proposal using one or more research methodologies. Initially there was fear that they will be unable to come up with required topics, literature review, and methodology. The "task" approach provided some structure and enabled students to move from lower order assignment to higher order ones.

Some positive developments were that students liked to listen to and identify with the different perspectives of their colleagues, enjoyed discussing and writing about their individual research topics, and were enthusiastic during discussions. The quality of students work was generally high because of the regular one on one feedback with the instructor. More cooperative work was done by the instructor and students improving students writing skills than by testing their knowledge of theory. Perseverance paid off for this instructor because students felt more comfortable when they realized that the research methods course was not as stressful and difficult as they had thought. The grade point average for this class was 3.2 out of a

4 point scale.

Summary

This paper summarizes action-research in which the writer sought to determine the learning style preference of students in a graduate class. The theoretical backdrop for this study is that learning styles impact on both the academic achievement of students and the teaching effectiveness of the instructor. The instrument used was the personal theory of learning inventory. It was hypothesized that the responses to the questionnaire will provide data indicating learning style preferences of the class, and of male and female subjects.

A second hypothesis was that test -retest means will reveal no significant difference at the .05 level. Both hypotheses were supported after the data were analyzed. One practical question was "is learning style theory useful in classroom practice at the graduate level ?" The answer is to that question is "yes" because a knowledge of students'learning style empowered the instructor to modify teaching and adapt individual teaching style for the benefit of individual students. Empowerment is also a two edged sword because when students become aware of their learning style preferences, they work harder to adapt to other learning styles when appropriate without a lot of anxiety or frustration. Instructors who do not assume that all students learn the same way may relate to the above report, and those who are still skeptical should try teaching through a variety of learning styles.

Figure 1. Personal Theory Of Learning Inventory - Graduate Students N=15

AUTHORITARIAN	Frequency First Administration		
	Male	Female	Total
1. I learn best when the teacher presents material in an orderly fashion.	4	11	15
2. I learn better when there is structure, drill,and practice	4	11	15
3. I enjoy lectures and note-taking	3	7	10
4. I enjoy reading textbooks and studying for tests	0	5	5
5. I prefer norm-referenced grading using A,B,C,D	2	8	10
NON-AUTHORITARIAN			
6. I like discussions that are open-ended	2	9	11
7. I like working in small groups	4	10	14
8. I enjoy investigating topics on my own	4	7	11
9. I like essay questions that permit different types of answers	3	8	11
10.I enjoy listening to the ideas of other students.	4	10	14

Figure 2. Personal Theory Of Learning Inventory - Graduate Students N=15

AUTHORITARIAN	Frequency Second Administration.		
	Male	Female	Total
1. I learn best when the teacher presents material in an orderly fashion.	4	11	15
2. I learn better when there is structure, drill,and practice	4	11	15
3. I enjoy lectures and note-taking	3	7	10
4. I enjoy reading textbooks and studying for tests	0	2	2
5. I prefer norm-referenced grading using A,B,C,D	0	8	8
NON-AUTHORITARIAN			
6. I like discussions that are open-ended	2	9	11
7. I like working in small groups	3	8	11
8. I enjoy investigating topics on my own	4	8	12
9. I like essay questions that permit different types of answers	4	9	13
10.I enjoy listening to the ideas of other students.	3	11	14

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